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Statistics of fractional moments applied to 3D video streams

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Abstract

© 2014 IEEE. The interest in processing three-dimensional (3D) videos is ever increasing because of the exponential growth of sophisticated devices supporting 3D streams. However, transmitting compressed 3D videos on channels with relatively limited bandwidth resources is a challenging research problem, because of the high variability of 3D streams. A stable and robust characterization of the statistical properties of 3D videos could be very useful for several applications (bandwidth management and control by effective schedulers/controllers, call admission control schemes, etc.). This work proposes a straightforward characterization method, based on the statistics of fractional moments. The properties of long sequences of 3D videos are reduced to a very small set of fitting parameters, constituting the video 'fingerprint'. The method is applied to a set of videos, with different compression degrees. Moreover, possible similarities among different fingerprints are investigated for an effective 3D video classification.

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Keywords

3D video, Fitting Parameters, Fractional Moments, Statistical Method